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ABSTRACT

This report was compiled by the Manpower and Planning Staff of the Federal Aviation Administration to provide information about the educational and training requirements for air traffic controllers and other related occupations. The purpose of the project was to help colleges plan programs to meet manpower needs. The document consists of: (1) non-technical and technical educational objectives for experimental aviation technology programs; (2) a model curriculum for experimental 2-year college aviation technology programs; and (3) sample curricula from 2-year colleges currently offering aviation technology programs. (RN)

ED 065121

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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WASHINGTON, D.C. 20590

THE EXPERIMENTAL AVIATION TECHNOLOGY EDUCATION PROJECT

CURRICULUM PACKAGE

- Draft statement of educational objectives for air traffic and related occupations
- Illustrative curriculum for 2-year aviation technology programs
- Sample curricula of 2-year aviation technology programs underway at various junior colleges

NOTE: THIS PACKAGE WAS PREPARED TO PROVIDE INFORMATION TO VARIOUS EDUCATORS AND INSTITUTIONS WHO REQUESTED IT. BY FORWARDING THESE MATERIALS, WE DO NOT INTEND TO IMPLY FAA ENDORSEMENT OR OFFICIAL STATUS OF ANY OF THEM. BY DEFINITION, THE EXPERIMENTAL PROGRAM IS TENTATIVE IN NATURE. THROUGH IT WE SEEK TO OBTAIN HARD DATA ABOUT THE EDUCATIONAL REQUIREMENTS OF FAA AND RELATED AVIATION OCCUPATIONS AND ABOUT PROGRAMS TO MEET THOSE REQUIREMENTS.

JC 720 183

PREPARED BY THE MANPOWER AND PLANNING STAFF, PT-15

SEPTEMBER, 1969

UNIVERSITY OF CALIF.
LOS ANGELES

SEP 6 1972

CLEARINGHOUSE FOR
JUNIOR COLLEGE
INFORMATION

MANPOWER AND PLANNING STAFF PT-15
FEDERAL AVIATION ADMINISTRATION

7/28/69

Proposed Educational Objectives of Those Experimental Aviation Technology Education Programs Which Are Aimed at Preparing Students for Air Traffic* and Related Occupations

Why Educational Objectives are Needed

The primary aim of the experimental project is to determine new means to help shape the FAA workforce of the future. To consciously and systematically plan the nature of the future workforce, the agency needs planned recruitment "reservoirs." We believe that one such "reservoir" might well be the nation's colleges and technical institutes. To help colleges plan the programs to produce the desired recruitment reservoir, we need to provide them with as complete and specific as possible data about the qualities and characteristics we will look for when we recruit from that reservoir.

Obviously, we are projecting the "ideal." But with the "ideal" in mind colleges can plan and provide experiences which will at least be aimed in the right direction.

Educational/Training Requirements of Air Traffic Controllers

The air traffic controller needs highly sophisticated technical skills and knowledge about the air traffic control process. But, in terms of the many factors, some only indirectly relating to the actual control of air traffic, which made up his total work situation the controller needs a number of non-technical skills, knowledge and some critical attitudinal qualities. Traditionally, the FAA training program has concentrated on the former and has given only passing attention to the latter. Hence, to the extent our controllers of today have the latter requirements, they picked them up largely through some "osmosis" process.

A "division of labor", so to speak, is suggested between what parts of the two types of air traffic controller needs can best be provided by the agency and what parts best by colleges working with us to develop a planned recruitment reservoir.

Because of the inc reasing complexity of the equipment to be used by the controller, and the constant changes, it is unlikely that colleges can provide the specific technical training controllers need. They can provide a readiness to receive that technical training. But the highly specialized training to work with specific equipment will continue to be done by the FAA.

In addition to providing the technical readiness to receive the specialized training, the colleges can provide the bulk of the educational experiences through which the non-technical skills, knowledge and critical attitudinal qualities can be developed.

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*The data on these sheets refer primarily to the air traffic occupation. However, with some modifications, the non-technical objectives are probably applicable to the other two major technical FAA occupations.

Non-technical educational objectives

The following lists the proposed non-technical educational objectives. That is, after completing the 2-year college program, the student should:

1. Have a broad overview of transportation, particularly of air transportation; of aviation technology; and of aeronautical science.

   Have a broad knowledge of the National Airspace System to be able to appreciate and better understand the part he plays in it.

   Have a general feel for the impact of air transportation in local, national and world history, on the economy and of its social and psychological impact.

   Have a general understanding of aviation technology including such things as the manufacture and maintenance of aircraft, flight, construction and management of airports.

   Have a practical knowlecge of such subject areas as analytical math, principles of air navigation, aerodynamics, aviation law.

2. Be familiar with, be comfortable with, have an ability to function effectively in a computer oriented, air transportation environment.

   Have developed a personal value structure, perhaps through an understanding of insight into the culture, the society and the world of which he is a part so that he can place his work and his technology in perspective and not be engulfed or feel threatened by it.

   Have ability to quickly learn new technical operations and to understand rapidly changing technological concepts.

3. Be able to cope with the frustations and to function effectively in a large, complex, technical and bureaucratic organization; and be able to meet the psychological and sociological demands in a work environment which results from it.

   Have inter-personal communications skills suitable for working closely as a member of a team in a highly structured, frequently tense, emotional situation charged with pressures resulting from his work.

   Have a practical understanding of group psychology and the process of group thinking.

4. Be able to perform various administrative tasks such as gathering and analysing data; preparing technical reports and staff papers.

   Be able to perform public relations tasks such as conducting tours, giving briefings, engaging in question/answer sessions, etc.

5. Have a practical knowledge of the managerial processes.

   Be able to understand these processes from the viewpoint of the supervisor or manager.

Technical Education Objectives

The following lists technical educational objectives which could be accomplished by the college. That is, upon completion of the program, the student should:

1. Sense what is needed by an individual to function effectively as an air traffic controller.

2. Know air traffic control regulations and procedures to the extent necessary to learn quickly the skills and knowledge required for performance as a manual controller.

   Be able to learn without further preliminary orientation the skills and knowledge required for being a radar controller

   Be able to learn readily without further general orientation the skill and knowledge necessary for performing the assistant controller function.

   Understand the interrelationships among the various air traffic controller options FAA terminal and enroute.

   Understand the function and relationship to the controller function of navigational aids and the role of the airways facilities personnel in working with air traffic personnel in accomplishing the related safety missions of the agency.

3. Be able to conceptualize spacial interrelationships; analyze and solve problems relating to such interrelationships; and make decisions thereto.

SUGGESTED AREAS OF STUDY FOR AN AIR TRAFFIC CONTROL COURSE

Appropriate junior college courses for people who might wish to become air traffic controllers and computer programmers are:

1. Mathematics.

   Integral Algebra.
   Vector Analysis.
   Boolean Algebra.

2. English.

   Basic College.
   Report Writing.

3. Geography.

   Land Forms
   - Settlement Patterns.
   - Transportation Systems.
   - Meteorology.
   - Political Divisions.

   Adjustments to Geographical Imperatives.
   - Population
   - Transport Systems.

4. Economics.

   Micro Economics.
   Transport Economics.

5. Communication Systems.

   Radio Theory.
   Radar Theory.
   Voice Training.

6. Computer Systems.

   Computer Theory.

7. Aviation History.

   CAA/FAA.
   Airports.
   Aircraft.
   Aviation Interest.
   NAS.

8. Transportation History

   Rail, Highway, Marine.
   Air.

9. Public Administration.

   Governmental Process.

Compiled by
Air Traffic Service
Federal Aviation Administration
Washington, D. C. 7-25-68

FAA - Manpower and Planning Staff-
Curriculum based upon educational needs of major FAA occupational groups

Illustrative Curriculum for Experimental Two-Year College Aviation Technology Programs

The curriculum described below is based upon or suggested by the data furnished by the FAA's Air Traffic, Systems Maintenance, Flight Standards, Airports and Research and Development Services about the educational needs of FAA employees, present and future. (See enclosed).

A program such as this would enlarge the educational base of the future work force, giving employees wider latitude in their choices of career avenues. It builds into an effective liberal arts program the aviation-related, administrative, and semi-technical subjects which will provide candidates with a basis for careers in aviation and the broader area of transportation. This two-year curriculum attempts to provide the student with a broad aviation-oriented educational foundation, to which he can later add more sophisticated technical or administrative study in the course of pursuing an aviation career in government or in private industry.

The curriculum includes 42 semester hours of "core courses" for the aviation technology program, leaving 18 semester hours open for the integration of electives chosen from the general liberal arts programs of the respective colleges. Some suggested elective courses are also included. The core courses include study in English, mathematics, economics, business administration, engineering, automatic data processing, and aviation technology. The suggested electives include psychology, political science, sociology, and philosophy.

To get as much mileage as possible in a two-year program, a particular approach to instruction is indicated. Instruction in English, economics, math, business administration, political science, sociology and other subjects is to be designed not so much to convey a body of information, but to develop an approach or discipline to the study of the subject. To accomplish this, a subject matter area or "vehicle" is needed. In the suggested curriculum, the vehicle is to be "air transportation." For example, broad concepts of sociology shall be taught using air transportation factors as illustrations.

The curriculum is discussed in detail below.

CORE COURSES

First Year

English -- 6 semester hours

The two semesters of English would be structured to include both composition/communication skills and literature. Three semester hours would be devoted to the former, with an emphasis on such specific skills as report writing, correspondence, and conference leadership. Students would be oriented to the role of personal communications, and the importance of language, speech, group discussion, and human relations, as well as writing skills, logical thinking, grammar, and usage.

Three semester-hours of literature--readings in fiction and non-fiction--would complete the year of English. This is the suggested composition of the course, however the individual colleges may well desire to determine themselves how to cover the material within the six semester hours.

Mathematics -- 6 semester-hours

Study in the field of mathematics is suggested as a six semester-hour, first-year core course. Beginning with a review of pre-college mathematics, the course would include intermediate algebra and trigonometry as a base for second-year courses in engineering and automatic data processing. This course would also serve as a basic mathematical background for the student should he choose to pursue a technically-oriented aviation career.

The course would also include study of statistics and statistical analysis, and accounting techniques, to be used in later economics and business administration courses.

Economics -- 6 semester-hours

This core course would provide the student the basic concepts of economic theory, both microeconomic and macroeconomic. Three of the semester-hours could include the material offered normally in a one semester survey course in basic economics.

The other three semester-hours would be devoted to the economics of administration, covering such topics as cost analysis techniques, accounting, statistical methods, elementary forecasting methods, and transportation economics topics. Attention would be given to the role of unions, management, and intra-governmental economics.

Aviation Technology -- 3 semester-hours

This is the first 3 of 9 semester-hours dealing specifically with aviation technology. These first three hours in this first year course could be concerned with a general introduction to the historical development of aviation and air transportation, concentrating on the period from 1800 to the present time. It would serve as a brief introduction to the development of aviation regulation, governmental controls, and transportation policies.

Second Year

Business Administration -- 6 semester-hours

These semester hours are intended to prepare the student for staff and management positions within the aviation industry. The course would be structured around the basic one-year business administration

or industrial management course offered at the community college, with additional emphasis on the study of industrial management, and the planning, programming, and budgeting skills inherent in both governmental and private managerial positions. Personnel administration techniques and public relations would also be stressed. The use of modern methods of data compilation and analysis would be coupled with concurrent study of automatic data processing techniques.

Engineering -- 6 semester-hours

Because of the large proportion of technical careers in the aviation field, six semester-hours of introductory engineering is suggested both to enable the students to familiarize themselves with some of these technical specialities, and also to provide a basic foundation should they decide to enter the technical side of the industry initially.

The six hours could be divided into four sections, each dealing with one of the four engineering areas most common to aviation, both governmental and private: aeronautical, mechanical, electronic, and civil. Because of the broad spectrum of the course, technical proficiency in these areas cannot be the goal; these six hours are designed merely as an introduction, to be supplemented in the second year with the last hours of the aviation technology course, which deal partly with the various technical functions found in the aviation industry. The course was placed in the second year so that the students will have attained the mathematical prerequisites through study in the first year.

Automatic Data Processing -- 3 semester-hours

These three semester-hours of study are intended to enable the future aviation employee to function better in the computer-oriented environment of the future, whatever area of aviation he chooses to enter. The course will emphasize the general techniques and approach of automatic data processing, rather than specific programming or technical operational skills. The application of electronic computing systems to administration, personnel management, and operational aviation in the form of the National Airspace System ,will be stressed. The use of computers for the effective collection and presentation of economic, personnel, and other administrative data will be approached from the view of the user, rather than of the data processing specialist.

Aviation Technology -- 6 semester-hours

These are the final six of a total of nine semester-hours of study in aviation technology itself. The material will cover the present state of aviation in the United States and other advanced nations, and the prospects for the future--the potentials and the problems. It will survey the equipment, techniques, regulations, and laws developed by and for the air carriers and general aviation.

The latter portion of the course, concluding the two-year program, will deal with a survey of the specific careers offered in the present and future aviation industry. It will introduce the students to the fundamentals of air traffic control, airport administration and design,

the various regulatory aspects of the FAA, aircraft design, and the diverse commercial airlines careers, for examples. The exact content of this course can be formulated at a later date with extensive technical advise from both the agency and private aviation industry sources.

ELECTIVES

The above core courses comprise 42 of the 60 hours in the program, leaving 18 hours of electives to be chosen by the student from the liberal arts offerings of his particular college. The 18 hours will be divided equally between the two years.

One aim of the program is to leave the curriculum somewhat flexible to accommodate the interests of the particular student. Therefore, the following elective courses are merely suggestions of additional subjects which might be of benefit to the student in a future aviation career, particularly if he chooses to enter a management area. The aim of these electives is to broaden the liberal arts backgrounds of the students, while at the same time imparting knowledge which might be of direct use to them in a future managerial position.

Psychology -- 6 semester hours

This elective could be divided into two sections of approximately a semester each, one dealing with general psychology and the other with administrative psychology. The general psychology semester could be taken from the college's standard introductory psychology course including an introduction to the experimental studies of human behavior; learning perception, motivation, maturation, emotion and personality.

The portion of the course concerned with administrative psychology would concern principally human relations, and the psychology of organizational behavior and that of management and supervision, designed to apply directly to future supervisory administrative positions.

Political Science -- 6 semester hours

The six hours study of political science should emphasize the basic concepts in government at the local, state, and national levels, and study of the principles, structure, and functions of government.

The study should also include theoretical political science encompassing the ideas behind democratic and non-democratic forms of government, and a systematic and comparative study of political structures, institutions, behavior, and processes, including study in modern international relations.

Sociology -- 3 semester hours

This half-year course could concern itself with group sociology and topics which would be beneficial to the student as he becomes a member of the society of a large organization. It could include sociological patterns in the United States, to orient the student to the rapid present and future changes in the society in which he will work.

Philosophy-Logic -- 3 semester-hours

The last 3 hours of electives will concern themselves with logic, inductive and deductive reasoning, symbolic logic, and the development of logical thinking throughout civilization. This is designed to complement the liberal education of the student and at the same time give him the tools which will help him in later positions of responsibility.

From the above discussion of the subject matter to be included, the following curriculum summary could be constructed for the two years:

AVIATION TECHNOLOGY PROGRAM

Freshman Year	Credit Hours
English	6
Mathematics	6
Economics	6
Aviation Technology	3
Electives*	9
First Year Total	30

Sophomore Year	Credit Hours
Business Administration	6
Engineering	6
Automatic Data Processing	3
Aviation Technology	6
Electives*	9
Second Year Total	30
Two-Year Total	60

*Suggested Electives	Credit Hours
Psychology	6
Political Science	6
Sociology	3
Philosophy-Logic	3
Total	18

To re-emphasize, the above are only curriculum suggestions, to serve as guidelines for the establishment of similar curricula in two-year community colleges. The actual curricula established will necessarily vary according to the characteristics unique to the particular junior colleges implementing them.

Suggested Post-High School Curriculum **

AVIATION TECHNOLOGY*
Air Traffic Option

1st Semester	Class	Lab.	Cr.
Basic Radio Theory (AC & DC) I	1	5	3
Communications I	3	0	3
Mathematics I (Technical)	3	0	3
Aviation Speech and Voice I	1	5	3
Typing I	0	2	2
History of Aviation	2	0	2
Elective - Physical Education	-	-	1
Totals	10	12	17

2nd Semester	Class	Lab.	Cr.
Business Management	2	0	2
Communications II	3	0	3
Mathematics II (Technical)	3	0	3
Aviation Speech and Voice II	1	5	3
Technical Writing	2	2	3
Basic Aerodynamics	1	3	2
Elective - Physical Education	-	-	1
	12	10	17

3rd Semester	Class	La'.	Cr.
Basic Electronic Data Processing	1	5	3
Meteorology I	3	0	3
Radar Theory I	1	3	2
Navigation Principles	1	3	2
Basic Airframe and Power Plants	1	3	2
Government	3	0	3
Elective**	-	-	2
Totals	10	14	17

4th Semester	Class	Lab.	Cr.
Computer Programming	1	5	3
Aviation Weather	3	0	3
Aero-Space Graphics	1	5	4
Aviation Laws and Regulations	3	0	3
National Airspace System	2	2	2
Elective**	-	-	2
	10	12	17

* Pilot Training: Supplementary - optional

** Suggested Electives:
- Aircraft Recognition
- Flight Data Systems
- Computation Aids

Job Opportunities:
- Federal Aviation Administration
- State Aviation Agencies
- Local Aviation Agencies
- Commercial Airlines
- Commercial Broadcasting
- Business and Industry (Data Processing)

** Developed by C. S. Barber, Program Officer, USOE, Kansas City, Mo.

Suggested Post-High School Curriculum **

AVIATION TECHNOLOGY*
Airport Management Option

1st Semester	Class	Lab.	Cr.
History of Aviation	2	0	2
Mathematics I (Technical)	3	0	3
Speech I	3	0	3
Economics I	3	0	3
Communications I	3	0	3
General Psychology	2	0	2
Elective - Physical Education	-	0	1
Totals	16	0	17

2nd Semester	Class	Lab.	Cr.
Basic Airframe and Power Plants	1	3	2
Business Management	2	0	2
Industrial Organizations	3	0	3
Government	3	0	3
Communications II	3	0	3
Basic Electronic Data Processing	1	5	3
Elective - Physical Education	-	-	1
	13	8	17

3rd Semester	Class	Lab.	Cr.
Airport Design I	1	5	3
Airport Operations and Management I	3	3	3
Aviation Laws and Regulations	3	0	3
Accounting I	2	0	2
Construction Materials	1	3	2
Land Management	2	0	2
Elective	-	-	2
Totals	12	11	17

4th Semester	Class	Lab.	Cr.
Airport Design II	1	5	3
Airport Operations and Management II	3	3	3
Personnel Administration	2	0	2
Cost Accounting I	2	0	2
Technical Writing	2	2	3
Aviation Concessions Mgmt.	2	0	2
Elective	-	-	2
	12	10	17

* Pilot Training: Supplementary - optional

Job Opportunities:
- Federal Aviation Administration
- Municipal Airport Agencies
- State Aviation Agencies
- Commercial Airlines
- Consulting Engineering Offices (Aviation-Transportation Related)
- Architectural Design Offices
- Commercial Aviation Enterprises
- Aviation Concession Enterprises

** Developed by C. S. Barber, Program Officer, USOE, Kansas City, Mo.

C H I C A G O C I T Y C O L L E G E

BOGAN CAMPUS
3939 W. 79th St.
Chicago, Illinois 60652

AVIATION ADMINISTRATION

The curriculum offers a wide spectrum of training in business with a distinct aviation orientation. Job entry to either commercial or general aviation is assured for the candidate completing the course of study.

FIRST SEMESTER

Courses	Cr. Hrs.
Aviation 101	3
Aviation 111	4
Transportation 101	3
*Communications Requirement	3
Mathematics Elective	1
	14

SECOND SEMESTER

Aviation 102	3
Aviation 130	3
Data Processing 101	3
Business 111	3
*Communications Requirement	3
	15

SUMMER TERM

Aviation 234	2

THIRD SEMESTER

Aviation 205	3
Business 101	3
Business 211	3
Economics 201	3
Humanities 201	3
	15

FOURTH SEMESTER

Aviation 211	3
Aviation 215	3
Business 102	3
Business 271	3
Psychology 206	3
	15
TOTAL	61

*General education requirements are described in the Chicago City College catalog.

GENERAL AVIATION

The curriculum was developed to acquaint the student with the world of flight, and to prepare him to take his place in the flying world of tomorrow.

The course offerings are pertinent and comprehensive, allowing job entry in both commercial and general aviation. The program provides a sound foundation for additional study and flight training if desired.

FIRST SEMESTER

Courses	Cr. Hrs.
Aviation 101	3
Transportation 101	3
Business 111	3
Slide Rule	1
Mathematics	3
	13

SECOND SEMESTER

Aviation 102	3
Aviation 111	4
Data Processing 101	3
*Communications Requirement	3
	13

THIRD SEMESTER

Aviation 112	3
Physical Science 101	3
Geography 101	3
Communications Elective	3
Elective	2-4
	14-16

FOURTH SEMESTER

Aviation 130	3
Aviation 201	3
Physical Science 102	3
Psychology 206	3
Elective	2-4
	14-16
TOTAL	54-58

ACCREDITATION

The College is accredited by the North Central Association of College and Secondary Schools

aerospace department

MIAMI-DADE JUNIOR COLLEGE MIAMI, FLORIDA

south campus 11011 s. w. 104th street
miami, florida 33156

Five distinct programs of study are available to meet the needs of the student and the Aerospace Industry.

AVIATION ADMINISTRATION

This program deals with the various aspects of Business Administration applicable to the Aviation Industry. General Education and Business Administration courses are interwoven with aviation subjects to provide the student with an adequate foundation.

PRE-AEROSPACE ENGINEERING

This program of study consists of Aerospace oriented subjects with General Education, including Science subjects necessary for pre-engineering curriculum. The sophomore student elects either the Career Program, which is terminal; or the Transfer Program; both satisfy the General Education and Pre-Engineering requirements.

FLIGHT ATTENDANT

This program is designed for those individuals who will meet and deal with the general public, especially air travelers. General Education, including Liberal Arts courses, are presented in conjunction with courses dealing with personal and social development, and air transportation.

CAREER PILOT

This program of study encompasses academic studies with flight training to qualify a student for a position requiring professional piloting knowledge. All phases of flight training are available which will enable the student to complete the Airman Certification Requirements of the Federal Aviation Administration.

AIR TRAFFIC MANAGEMENT

A program of study which prepares the individual for a career in Air Traffic service, both industry and government; included are academic, and flight oriented subjects. A cooperative program with the Federal Aviation Administration is available.

9/69

MIAMI-DADE JUNIOR COLLEGE - SOUTH CAMPUS

Aerospace Department

AIR TRAFFIC CONTROL

COOPERATIVE EDUCATION PROGRAM

The South Campus of the Miami-Dade Junior College has a Cooperative Education program, in conjunction with the Federal Aviation Administration, which involves alternating semesters of college and tours of duty. Included are two years of college along with two on-the-job sessions of four months each.

The purpose of this program is to provide practical work experience for qualified students while pursuing the Air Traffic Management program of study and to provide an opportunity for a permanent Civil Service career with the Federal Aviation Administration in the Air Traffic Control system.

Students who have completed fifteen credits, with a satisfactory average, will be recommended by the College. The Federal Aviation Administration will then administer qualification examinations in which the student must attain a passing grade in order to be accepted. After completing thirty credits of study, the first work tour begins at the Miami Air Route Traffic Control Center.

The Co-Op student will be employed as a Flight Data Aide receiving $86 a week at a GS-3 grade. The first four weeks will be spent learning essentials necessary in the performance of duties.

After completing the first four-month work session the Co-Op student will return to college and pursue a normal academic course load for one semester. This work-college sequence will be repeated once again terminating with graduation.

While neither the student nor the Federal Aviation Administration is obligated for permanent employment after graduation, that, of course, is the objective of the program.

FEDERAL AVIATION ADMINISTRATION

MIAMI CENTER TRAINING PROGRAM

PHASE I

FAA INDOCTRINATION - One-half Week

The objective of the FAA indoctrination is to complete necessary personnel forms and to inform the new employee of FAA policies and his role in the mission of the Agency.

Completion of EOD forms
Security education program
Leave program
Conduct and discipline
Job description and hours of duty
Performance rating system
General and local policies
Placement follow-up survey
Employee beneficial aid
Hospitalization plans

BASIC CERTIFICATION COURSE - Four and One-half Weeks

The objective of the Basic Certification Course is to provide classroom training which will prepare the student for the Basic Certification examination. At the completion of the course a final examination will be given. Each element requires a grade of 70% or better to qualify for an ATCS certificate.

Air Traffic Rules
Airport Traffic Control
Air Route Traffic Control
Communications Procedures
Flight Assistance Service
Navigation Aids
Aviation Weather

FLIGHT DATA TRAINING COURSE - Five Weeks

The objective of the Flight Data Training Course is to provide classroom training that will prepare the student to work the Flight Data positions under supervision.

300 Telephone System
Airways, routes, center boundary, adjacent center areas
Location identifiers, codes and abbreviations

Sector alignment and numbering
Strip marking and preparation
Sector fix postings and mileages between fixes
Formation of Teletype messages
Stored flight plans, air carrier and military
Flight Data positions and responsibilities
Cardatype machines and IBM cards
Assistant Controller duties
Local and general procedures
Special Military Operating Procedures (TAC/ADC)

FLIGHT DATA ON-JOB TRAINING - Six Weeks

The objective of the Flight Data on-job training is to prepare the student to become operationally proficient on all Flight Data positions.

Operate Flight Data positions under supervision
Participate in self-study course
Complete Flight Data Proficiency Tests 1 through 8

Training for Phase I must be completed within six months after EOD

PHASE II

ASSISTANT CONTROLLER ON-JOB TRAINING - Four Weeks

The objective of the Assistant Controller on-job training is to prepare the student to be operationally proficient on all Assistant Controller positions in assigned area, and preparation for entry into controller training.

Operate Assistant Controller positions under supervision
Participate in self-study course
Complete pre-area rating tests 1 through 8

Training for Phase II must be completed within 12 months after EOD.

PHASE III

CONTROLLER QUALIFICATION COURSE - Sixteen Weeks

The objective of the Controller Qualification Course is to prepare the student, through the use of simulated traffic problems, to demonstrate the ability to control traffic utilizing complex control problems and to pass written test for area rating. (Eight weeks)

Operate control position under supervision (Eight Weeks)

If offered, the training for Phase III must be completed within 24 months after EOD.

MIAMI-DADE JUNIOR COLLEGE - SOUTH CAMPUS

AEROSPACE DEPARTMENT

GENERAL AEROSPACE

Associate in Arts Degree

Freshman Year

First Term				Second Term			
Course Number	Course Name		Credit Hours	Course Number	Course Name		Credit Hours
SSC 101	Social Science.		3	SSC 102	Social Science.		3
ENG 101	English Composition		3	ENG 102	English Composition		3
- -	General Education Elective.		3	- -	General Education Elective.		3
AER -	Aerospace Elective.		3	AER -	Aerospace Elective.		3
AER -	Aerospace Elective.		3	AER -	Aerospace Elective.		3
			15	PED -	Physical Education Elective		1
							16

Sophomore Year

First Term				Second Term			
Course Number	Course Name		Credit Hours	Course Number	Course Name		Credit Hours
HUM 201	Humanities.		3	HUM 202	Humanities.		3
- -	Natural Science General Education Elective. . . .		3	- -	Natural Science General Education Elective. . . .		3
- -	General Education Elective.		3	- -	General Education Elective.		3
AER -	Aerospace Elective.		3	AER -	Aerospace Elective.		3
AER -	Aerospace Elective.		3	AER -	Aerospace Elective.		3
			15	PED -	Physical Education Elective		1
							16

Total Credits: 62

Three credits of Aerospace Elective may be substituted by three credits of General Education Elective.

GENERAL AEROSPACE

Course Requirements

General Education	Credits
SSC 101 - 102	6
ENG 101 - 102	6
HUM 201 - 202	6
NSC ___ - ___	6
Electives ___ - ___ - ___ - ___	12
PED ___ - ___	2

38

Aerospace	
Electives ___ - ___ - ___ - ___	
___ - ___ - ___ - ___	24
	24

Total Credits 62

Three credits of Aerospace Elective may be substituted by three credits of General Education Elective.

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MIAMI-DADE JUNIOR COLLEGE - SOUTH CAMPUS

AEROSPACE DEPARTMENT

AVIATION ADMINISTRATION

A Pre-Business Administration Program
Associate in Arts Degree

Freshman Year

First Term			Second Term		
Course Number	Course Name	Credit Hours	Course Number	Course Name	Credit Hours
AER 110	Aircraft Development	3	AER 111	Air Transportation.	3
ACC 101 or 181	Accounting I Principles of Accounting . .	3	ACC 102 or 182	Accounting II Principles of Accounting. .	3
ENG 101	English Composition.	3	ENG 102	English Composition	3
SSC 101	Social Science	3	SSC 102	Social Science.	3
- -	Natural Science General Education Elective	3	BUA 181 or 182	Principles of Business Principles of Management. .	3
		15			15

Spring Term

MGT 125	Principles of Transportation	3
MKT 131	Principles of Marketing.	3
		6

Sophomore Year

First Term			Second Term		
Course Number	Course Name	Credit Hours	Course Number	Course Name	Credit Hours
AER 210	Airline Management	3	AER 211	Aviation Law.	3
AER 212	Airline Marketing.	3	AER 213 or 214 or 215	Air Cargo Airport Management Aviation Problems	3
BUA 231	Business Law	3			
ECO 201	Principles of Economics. . .	3	- -	Natural Science General Education Elective. . . .	3
HUM 201	Humanities	3	ECO 202	Principles of Economics . .	3
PED -	Physical Education Elective	1	HUM 202	Humanities.	3
		16	PED -	Physical Education Elective	1
					16

Total Credits: 68

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AVIATION ADMINISTRATION

Course Requirements

General Education	Credits
SSC 101 - 102	6
ENG 101 - 102	6
HUM 201 - 202	6
NSC ___ - ___	6
PED ___ - ___	2
	26

Business Administration	Credits
ACC 101 - 102 or 181 - 182	6
BUA 181 or 182 - 231	6
ECO 201 - 202	6
MKT 131	3
MGT 125	3
	24

Aerospace	Credits
AER 110	3
AER 111	3
AER 210	3
AER 211	3
AER 212	3
AER 213, 214, or 215	3
	18

Total Credits 68

MIAMI-DADE JUNIOR COLLEGE - SOUTH CAMPUS

AEROSPACE DEPARTMENT

AEROSPACE ENGINEERING

A Pre-Engineering Program
Associate in Arts Degree

CORE PROGRAM

Freshman Year

First Term

Course Number	Course Name	Credit Hours
ENG 101	English Composition	3
SSC 101	Social Science.	3
CHM 101	General Chemistry	4
MTH 112	Integrated College Algebra and Trigonometry.	5
PED -	Physical Education Elective	1
		16

Second Term

Course Number	Course Name	Credit Hours
AER 111	Air Transportation.	3
ENG 102	English Composition	3
SSC 102	Social Science.	3
CHM 102	General Chemistry	4
MTH 230	Analytic Geometry	3
		16

Upon completing the first year, the student elects either the Career or the Transfer Program for the second year.

CAREER PROGRAM

Sophomore Year

First Term

Course Number	Course Name	Credit Hours
AER 139	Aircraft Engines and Structures Theory	3
PHY 201	Physics	4
HUM 201	Humanities.	3
EGR 101	Engineering Drawing I . . .	3
PED -	Physical Education Elective	1
		14

Second Term

Course Number	Course Name	Credit Hours
AER 138	Aerodynamics.	3
AER 238	Aircraft Systems.	3
HUM 202	Humanities.	3
EGR 205	Engineering Drawing II. . .	3
PHY 202	Physics	4
		16

Total Credits: 62

TRANSFER PROGRAM

Spring Term

AER 139	Aircraft Engines and Structures Theory	3
HUM 201	Humanities	3
		6

Sophomore Year

First Term

Course Number	Course Name	Credit Hours
MTH 240	Calculus I.	5
PHY 205	Physics	4
HUM 202	Humanities.	3
EGR 101	Engineering Drawing I . . .	3
		15

Second Term

Course Number	Course Name	Credit Hours
AER 138	Aerodynamics.	3
AER 238	Aircraft Systems.	3
MTH 241	Calculus II	5
PHY 206	Physics	4
PED -	Physical Education Elective	1
		16

Total Credits: 69

AEROSPACE ENGINEERING

Course Requirements

General Education	Credits	
SSC 101 - 102	6	
ENG 101 - 102	6	
HUM 201 - 202	6	
PED ___ - ___	2	
		20

Core Program		
CHM 101 - 102	8	
MTH 112 - 230	8	
AER 111	3	
		19
		39

In addition to the above 39 credits either of the two programs below are to be followed.

Career Program		
PHY 201 - 202	8	
EGR 101 - 205	6	
AER 138 - 139 - 238	9	
		23
Career Program Total Credits		62

Transfer Program		
PHY 205 - 206	8	
MTH 240 - 241	10	
EGR 101	3	
AER 138 - 139 - 238	9	
		30
Transfer Program Total Credits		69

MIAMI-DADE JUNIOR COLLEGE - SOUTH CAMPUS

AEROSPACE DEPARTMENT

FLIGHT ATTENDANT

A Pre-Liberal Arts Program
Associate in Arts Degree

Freshman Year

First Term

Course Number	Course Name	Credit Hours
AER 110	Aircraft Development	3
PSD 101	Personal and Social Development I.	3
BUA 181	Principles of Business . . .	3
ENG 101	English Composition.	3
SSC 101	Social Science	3
PED 120	Survival Swimming.	1
		16

Second Term

Course Number	Course Name	Credit Hours
AER 111	Air Transportation	3
PSD 102	Personal and Social Development II	3
SOC 205	Marriage and the Family. . .	3
ENG 102	English Composition.	3
SSC 102	Social Science	3
PED -	Physical Education Elective.	1
		16

Spring Term

SPE 105 Fundamentals of Public Speaking 3

Sophomore Year

First Term

Course Number	Course Name	Credit Hours
PSY 203	Human Relations.	3
HUM 201	Humanities	3
- -	Modern Language Elective . .	3
- -	Natural Science General Education Elective	3
- -	Elective	3
		15

Second Term

Course Number	Course Name	Credit Hours
HUM 202	Humanities	3
PED 209	First Aid.	2
AER 130	Flight-Introduction (optional)	1
- -	Modern Language Elective . .	3
- -	Natural Science General Education Elective	3
- -	Elective	3
		14-15

Total Credits: 64-65

B-24

FLIGHT ATTENDANT

Course Requirements

General Education	Credits
SSC 101 - 102	6
ENG 101 - 102	6
HUM 201 - 202	6
NSC ___ - ___	6
SOC 205	3
SPE 105	3
PSY 203	3
Modern Language ___ - ___	6
PED 120 - 209 - ___	4
	43

Aerospace	Credits
AER 110	3
AER 111	3
AER 130 (Optional)	1
	6 - 7

Other	Credits
BUA 181	3
PSD 101- 102	6
Elective ___ - ___	6
	15
Total Credits	64 - 65

MIAMI-DADE JUNIOR COLLEGE - SOUTH CAMPUS

AEROSPACE DEPARTMENT

CAREER PILOT

Freshman Year

First Term

Course Number	Course Name	Credit Hours
AER 130	Flight-Introduction	1
AER 131	Flight-Basic.	3
AER 132	Flight Theory	3
AER 137	Aerophysics	3
SSC 101	Social Science.	3
ENG 101	English Composition	3
		16

Second Term

Course Number	Course Name	Credit Hours
AER 133	Air Navigation.	3
AER 134	Aviation Meteorology. . . .	3
AER 139	Aircraft Engines and Structures Theory	3
AER 230	Flight-Intermediate I . . .	3
SSC 102	Social Science.	3
PED -	Physical Education Elective	1
		16

Spring Term

AER 135	General Aviation Safety	3
AER 231	Flight-Intermediate II (12 Weeks)	3
		6

Sophomore Year

First Term

Course Number	Course Name	Credit Hours
AER 111	Air Transportation.	3
AER 136	Radio Aids and Communications	3
AER 138	Aerodynamics.	3
AER 232	Flight-Advanced I	3
HUM 201	Humanities.	3
		15

Second Term

Course Number	Course Name	Credit Hours
AER 238	Aircraft Systems.	3
MTH -	Elective.	3
ENG 102	English Composition	3
HUM 202	Humanities.	3
PED -	Physical Education Elective	1
		13

Optional flight courses may be elected in the last semester.

Total Credits: 66

This program leads to an Associate in Science Degree, however fifteen additional credits in General Education will qualify for the Associate in Arts Degree.

CAREER PILOT

Course Requirements

General Education	Credits
SSC 101 - 102	6
ENG 101 - 102	6
HUM 201 - 202	6
MTH ___	3
PED ___ - ___	2
	23

Aerospace Flight	Credits
AER 130	1
AER 131	3
AER 230	3
AER 231	3
AER 232	3
	13

Flight Associated Academic Courses	
AER 111	3
AER 132	3
AER 133	3
AER 134	3
AER 135	3
AER 136	3
AER 137	3
AER 138	3
AER 139	3
AER 238	3
	30

Total Credits	66

MIAMI-DADE JUNIOR COLLEGE - SOUTH CAMPUS

AEROSPACE DEPARTMENT

CAREER PILOT

Flight Hours and Fees

Course	Dual	Solo	Link	Oral	Credits	Burnside-Ott	American Aviation
AER 130	10	---	---	2	1	$ 172.00	$ 172.00
AER 131	15	25	---	4	3	614.00	614.00
AER 230	15	40	---	4	3	852.00	852.00
AER 231	15	40	---	4	3	824.00	824.00
AER 232	20	---	10	5	3	530.00	600.00
AER 233	10	---	---	5	1	430.00	780.00
AER 234	25	---	---	40	3	640.00	690.00
AER 235	10	---	---	20	2	300.00	350.00
AER 236	25	---	15	10	3	1,210.00	890.00

Required: 130, 131, 230, 231, 232.
Optional: 233, 234, 235, 236.

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MIAMI-DADE JUNIOR COLLEGE - SOUTH CAMPUS

AEROSPACE DEPARTMENT

CAREER PILOT FLIGHT AND ASSOCIATED ACADEMIC COURSES

FLIGHT COURSES			CREDITS
AER 130	Flight-Introduction	Solo.	1
AER 131	Flight-Basic	Private Pilot	3
AER 230	Flight-Intermediate I	Commercial Pilot.	3
AER 231	Flight-Intermediate II	Commercial Pilot.	3
AER 232	Flight-Advanced I	Instrument Pilot.	3
AER 233	Flight-Advanced II	Multi-Engine Pilot. . . .	1
AER 234	Flight-Advanced III	Certificated Flight Instructor.	3
AER 235	Flight-Advanced IV	Instrument Flight Instructor.	2
AER 236	Flight-Airline	Airline Transport Rating.	3

FLIGHT ASSOCIATED ACADEMIC COURSES

AER 132	Flight Theory.	3
AER 133	Air Navigation	3
AER 134	Aviation Meteorology	3
AER 135	General Aviation Safety.	3
AER 136	Radio Aids and Communications.	3
AER 137	Aerophysics.	3
AER 138	Aerodynamics	3
AER 139	Aircraft Engines and Structures Theory	3
AER 237	Flight Simulation.	3
AER 238	Aircraft Systems	3

MIAMI-DADE JUNIOR COLLEGE - SOUTH CAMPUS

AEROSPACE DEPARTMENT

AIR TRAFFIC MANAGEMENT

An Associate in Arts Degree

Freshman Year

First Term

Course Number	Course Name	Credit Hours
AER 130	Flight-Introduction.	1
AER 131	Flight-Basic	3
AER 132	Flight Theory.	3
AER 110	Aircraft Development	3
ENG 101	English Composition.	3
SSC 101	Social Science	3
		16

Second Term

Course Number	Course Name	Credit Hours
AER 111	Air Transportation	3
AER 133	Air Navigation	3
AER 134	Aviation Meteorology	3
ENG 102	English Composition.	3
SSC 102	Social Science	3
PED -	Physical Education Elective	1
		16

Spring Term

HUM 201	Humanities	3
SPE 105	Fundamentals of Public Speaking	3
		6

Sophomore Year

First Term

Course Number	Course Name	Credit Hours
AER 135	General Aviation Safety. . .	3
AER 211	Aviation Laws and Regulations.	3
PSY 203	Human Relations.	3
MTH 201	General Education Mathematics	3
- -	General Education Elective .	3
		15

Second Term

Course Number	Course Name	Credit Hours
AER 136	Radio Aids and Communications.	3
BIS 101	Digital Computer Theory. . .	3
HUM 202	Humanities	3
PHY 104	Physical Science	3
- -	General Education Elective .	3
PED -	Physical Education Elective.	1
		16

Total Credits: 69

While attending the above courses, the student may participate in a Cooperative Education program with the Federal Aviation Administration Air Traffic Service.

AIR TRAFFIC MANAGEMENT

Course Requirements

General Education	Credits
SSC 101 - 102	6
ENG 101 - 102	6
HUM 201 - 202	6
MTH 201	3
PSY 203	3
SPE 105	3
PHY 104	3
Elective ___ - ___	6
PED ___ - ___	2
	38

Aerospace	Credits
AER 110	3
AER 111	3
AER 130	1
AER 131	3
AER 132	3
AER 133	3
AER 134	3
AER 135	3
AER 136	3
AER 211	3
	28

Other	Credits
BIS 101	3
	3

Total Credits 69

MIAMI-DADE JUNIOR COLLEGE - SOUTH CAMPUS
AEROSPACE DEPARTMENT

AER 110 Aircraft Development 3 credits
An informative, historical survey of the effort of manned flight. Presented is the development of aircraft, milestones in aviation, noted pioneers and the socio-economic impact of flight upon modern civilization.

AER 111 Air Transportation 3 credits
The development and present status of air transportation, federal legislation, characteristics and classification of air carriers; the organization and functions of the Federal Aviation Administration and the Civil Aeronautics Board is reviewed.

AER 130 Flight-Introduction (Solo) 1 credit
An introduction to flight through flying experience. Twelve hours of instruction is provided of which 10 hours is spent in dual flight and 2 hours in oral instruction in addition to flight line briefing. The program is sufficient to qualify a student pilot for solo flight.

This course is designed for those who want to begin training toward qualifying for a Federal Aviation Administration Private Pilot Certificate; or for a student who merely desires to achieve the fundamental, practical experience of flight and firsthand knowledge of aircraft operation. A Class II Federal Aviation Administration Medical Certificate is required; however, a Class I is recommended. Flight fees are additional.

AER 131 Flight-Basic (Private Pilot) 3 credits
This course is designed for completion of the Private Pilot Certificate requirements. Flight instruction requirements include 15 hours of dual, 25 hours of solo, and 4 hours of oral instruction in addition to flight line briefing.

The student must also be enrolled in AER 132, Flight Theory, which is the companion course. Flight fees are additional. Prerequisite: AER 130.

AER 132 Flight Theory 3 credits
The principles of flight, basics of air traffic control, weather facts, navigational procedures and airplane operation as are pertinent for the Private Pilot. Upon successful completion of this course, the student has sufficient knowledge to pass the Federal Aviation Administration written examination for the Private Pilot Certificate.

AER 133 Air Navigation 3 credits
The basic elements of air navigation; the fundamentals and practical application of pilotage and dead reckoning, including the use of plotter, computer, aerial charts and Federal Aviation Administration publications pertinent to flying. Prerequisite: AER 132 or equivalent.

AER 134 Aviation Meteorology 3 credits

The interpretation of meteorological phenomena affecting aircraft flight. A study of the basic concepts of aviation meteorology; temperature, pressure, moisture, stability, clouds, air masses, fronts, thunderstorms, icing and fog. Analysis and use of weather data for flight planning and safe flying; interpretation of United States Weather Bureau maps, reports and forecasts. Prerequisite: AER 132.

AER 135 General Aviation Safety 3 credits

The fundamentals essential to safe flight; instruments used and the evaluation and interpretation of their indications. Weight and balance problems are given consideration; also, the Federal Aviation Regulations appertaining to safe flight. Included is the use of the Airman's Information Manual. Prerequisite: AER 132.

AER 136 Radio Aids and Communications 3 credits

Basic radio fundamentals as used by the pilot. A description and practical use of various radio aids to safe aerial navigation, including Very High Frequency Omni Direction Range (VOR), Instrument Landing System (ILS), Direction Finding (DF) and others. Charts and approach plates as adapted to radio navigation and the application of the Airman's Information Manual. Prerequisite: AER 133, 134 and 135.

AER 137 Aerophysics 3 credits

Introduction to physics, physical terms, the basis for physical laws in practical application to aeronautics. Course of study includes laws of motion, gas laws, electromagnetism, basic principles of electrical circuits, hydraulics and pneumatics.

AER 138 Aerodynamics 3 credits

Analysis of the physics of flight including the application of basic aerodynamics to the wing and airfoil and the analysis of lift and drag components relative to the wing planform and airplane performance. The application of aerodynamic effect of turbo jet engines involving the principles of propulsion. Prerequisite: Aer 139.

AER 139 Aircraft Engines and Structures Theory 3 credits

Fundamental principles of aircraft engines, including engine theory, materials and methods of construction, lubricants and lubrication systems, induction systems and superchargers. General engine operating procedures and performance diagnosis. Principles of aircraft structures, including stresses operating on airframe structures, purpose, types and construction of airframes.

AER 210 Airline Management 3 credits

The functions of management in airline operation; air carrier familiarization, effect of federal regulation, organization, uniform System of Accounts and Reports, Rules of Practice in Economic Proceedings; industrial, financial and economic implications relative to decision-making. Prerequisite: AER 111.

AER 211 Aviation Laws and Regulations 3 credits
Local, federal and international laws forming the present structure of aviation law. A study of the development of aviation law, through enactment of laws and judicial decisions applying those laws. Prerequisite: AER 111

AER 212 Airline Marketing 3 credits
The function of marketing in airline operation; market research, demand analysis, advertising and promotion, sales, traffic, and the theory of price determination. Corequisite: AER 210.

AER 213 Air Cargo 3 credits
The evolution of air cargo; the purpose, use and advantages of air mail, air express and air freight to modern United States industry. A discussion of air cargo characteristics, problems, and future development. Prerequisite: AER 212.

AER 214 Airport Management 3 credits
A presentation of the major functions of airport management; organization, zoning, adequacy, financing, revenues and expenses, evaluation and safety. A study of the Airport and its socio-economic effect on the community. Prerequisite: AER 111.

AER 215 Aviation Problems 3 credits
Individually directed research by independent study, dealing with present and future problems of the aviation industry. The student assimilates previous course material and demonstrates knowledge of the subject. Prerequisite: Permission of department chairman.

AER 230 Flight-Intermediate I (Commercial Pilot) 3 credits
The first half of two phases of flight training in preparation for the Federal Aviation Administration Commercial Pilot Certificate. Flight instruction requirements include 15 hours of dual, 40 hours of solo, and 4 hours of oral instruction in addition to flight line briefing. Flight fees are additional. Prerequisite: AER 131 or a valid Federal Aviation Administration Private Pilot Certificate.

AER 231 Flight-Intermediate II (Commercial Pilot) 3 credits
A continuation of AER 230. The second half of two phases of flight training leading to the successful completion of the Federal Aviation Administration Commercial Pilot Certificate. Flight instruction requirements include 15 hours of dual, 40 hours of solo, and 4 hours of oral instruction in addition to flight line briefing. Flight fees are additional. Prerequisite: AER 230 or equivalent flight experience as determined by the department chairman.

AER 232 Flight-Advanced I (Instrument Pilot) 3 credits
The necessary instruction to qualify for the Federal Aviation Administration Instrument Pilot Rating. Flight instruction requirements include 20 hours of dual, 10 hours of synthetic flight, and 5 hours of oral instruction in addition to flight line briefing. Flight fees are additional. Prerequisite: AER 231, or a Commercial Pilot Certificate, or qualify for the Commercial Pilot Certificate requirements.

AER 233 Flight-Advanced II (Multi-Engine Pilot) 1 credit

This course of flight training leads to the Federal Aviation Administration Multi-Engine Pilot Rating. All flying is given in modern twin-engine aircraft and is designed to give the advanced pilot a greater depth of aircraft experience. Flight instruction requirements include 10 hours of dual and 5 hours of oral instruction in addition to flight line briefing. Flight fees are additional. Prerequisite: AER 131, or a Private Pilot Certificate; or AER 231, or a Commercial Pilot Certificate.

AER 234 Flight-Advanced III (Certificated Flight Instructor) 2 credits

This flight course prepares the experienced pilot for the Federal Aviation Administration Certificated Flight Instructor Certificate for airplane. Flight instruction requirements include 25 hours of dual and 40 hours of oral instruction in addition to flight line briefing. Flight fees are additional. Prerequisite: AER 231, or a Commercial Pilot Certificate, or qualify for the Commercial Pilot Certificate requirements.

AER 235 Flight-Advanced IV (Instrument Flight Instructor) 2 credits

A program of advanced flight training to prepare the experienced Instrument Pilot to pass the Federal Aviation Administration requirements for the Instrument Flight Instructor Certificate for airplane. Flight instruction requirements include 10 hours of dual and 20 hours of oral instruction in addition to flight line briefing. Flight fees are additional. Prerequisite: AER 232, or a currently valid Federal Aviation Administration Instrument Pilot Rating.

AER 236 Flight-Airline (Airline Transport Rating) 3 credits

Flight training to qualify for the Federal Aviation Administration Airline Transport Rating in either single or multi-engine aircraft. Type and size of aircraft is optional. Flight instruction requirements include 25 hours of dual, 15 hours of synthetic flight, and 10 hours of oral instruction in addition to flight line briefing. Flight fees are additional. Prerequisite: A valid Federal Aviation Administration Commercial, Instrument and Multi-Engine Pilot Certificates, or AER 231, 232, and 233.

AER 238 Aircraft Systems 3 credits

A detailed study of the theory of the operation of aircraft hydraulic, electrical, fuel, oil, pressurization, anti-icing, and instrument systems. This course of study includes the various sources of basic power for the operation of aircraft systems as well as the functional application of mechanisms operated by these systems. Prerequisite: AER 139.

MT. SAN ANTONIO COMMUNITY COLLEGE
LOS ANGELES
BACKGROUND

Mt. San Antonio Community College is located about an hour's drive East of Downtown Los Angeles in the rural community of Walnut, California. The College has offered an aviation curriculum for several years.

Faculty members at Mt. SAC, as the College is known locally, have attended all Community College meetings where FAA officials have discussed long range manpower recruiting goals. They are very receptive to another avenue of employment for their students, the Federal Government.

New Air Traffic Controller qualification standards permit their students, with instrument ratings, to apply as Controller Trainees at the GS-7 level. In addition to their normal flight courses the governing board at the College believe that acquaintance with the Air Traffic Control System will benefit all their students, even the ones desiring to become reservation agents, cargo representatives, ramp agents and other non-technical and non-pilot categories. FAA is being asked to assist in determining the amount, type, and degree of Air Traffic material that should be presented to students during this interim program as well as what should be developed for the long range program. The LAX Area has only assisted with the interim program and basically the Air Traffic recomdation follows the old Center training outline.

Rationale for the attached interim course curriculum was as follows:

I Air Traffic Management - This curriculum, although patterned after Miami-Dade, is quite a bit broader. It provides the Commercial Flight Training student a career opportunity if he fails that curriculum or as what usually happens he runs out of funds.

Students selected to participate in the Air Traffic Controller Internship Program would graduate with an Associate in Arts Degree in Air Traffic Management, a private pilot's license, and an instrument flight rating. At this stage he could continue his education, seek employment within the commercial aviation community, or apply for employment with FAA as an Air Traffic Controller, GS-7. At some later date FIDO and GADO training positions may be feasible.

It is hoped that positions for the Internship Program can be made available at the Washington level. If not it is recommended that 7 - 10 positions be made available from the Region's total for this program.

Student on-the-job training could be accomplished at nearby facilities, such as Brackett Tower, LaVerne, California; Ontario Tower and Station, Ontario, California; Riverside Tower, Riverside, California; and Fullerton Tower, Fullerton, California.

II. Commercial Flight Training - This curriculum is designed for the student going into commercial aviation, although he does not obtain an instrument flight rating. However, if he cannot continue this course of study for any reason he is eligible to enroll in either the Air Traffic Management curriculum or the Air Transportation curriculum. He may take air traffic control courses as electives but does not participate in the Intern program.

III. Air Transportation - This curriculum provides an opportunity for those students that are unable to take or do not want flight training. It also provides an avenue for students that fail or otherwise cannot continue the above two curriculums.

The statement made by the College regarding entry level jobs in FAA is no longer correct and will be changed. Prior to issuance of Civil Service Commission Announcement No. 418, issue date: Nov. 1, 1968; Air Traffic Control Specialists; the College was assuming that any of their students would be eligible to apply for employment for ATCS at the GS-4 level. The announcement restricts entry to the GS-5 level.

MT. SAN ANTONIO COLLEGE

AERONAUTICS DEPARTMENT

AIR TRAFFIC MANAGEMENT

An Associate in Arts Degree

This program has been prepared with the aid of the Federal Aviation Agency and the State of California Department of Education. It is designed primarily for the student who is interested in becoming an air traffic controller or related fields such as airline dispatcher, airport management, professional pilot, or military flight operations. Though desirable, the pilot license is not required to meet graduation requirements.

FRESHMAN YEAR	FALL	SPRING
Basic Ground School 23	3	
Flight 35 ABC	1-3	
Navigation 24		4
English	3	
United States History 50		3
Business Math 11	3	
Metcorology 26		3
Psychology 50		2
Introduction to Business 20		3
Health Education 1	2	
Orientation and Guidance 50	½	
American Institutions 50	3	
Physical Education	½	½
Electives		2
	16	17½

SOPHOMORE YEAR	FALL, SPRING
Air Transportation 17	3
Instrument Ground School 30	3
Introduction to the American Economy 39	3
Philosophy 3	3
Aeronautics 44(Traffic Control)	3
Aeronautics 45(Traffic Control)	3
English 1A	3
Federal Air Regulations 29	1
Aeronautics 46(Traffic Control)	3
Survey of Data Processing 50	3
Geography 5	3
Air Law and Regulation 19	2
Physical Education	½
	16½ 17½

SUMMER

Aeronautics 47 3

In this program there will be a summer Air Traffic Controller Internship - Aeronautics 47. Selected students will spend a specified amount of time working in an ATC facility. These students must pass Civil Service entrance exams and a Federal Aviation Agency's psychological test. This is not an automatic progression. Their scholastic standing at MSAC will be taken into consideration with a 2.0 GPA as the base.

MT. SAN ANTONIO COLLEGE

AERONAUTICS DEPARTMENT

COMMERCIAL FLIGHT TRAINING

An Associate in Arts Degree

This program has been prepared with the aid of the Federal Aviation Agency and the State of California Department of Education. Upon completion of the Commercial Flight Training curriculum the student is awarded an Associate in Arts Degree and is prepared for the F. A. A. Commerical Pilot's License examination.

An option is provided for those students who desire to enhance their employment opportunities by taking specific courses in Air Traffic Management in lieu of Aerospace Education 20 and electives.

FRESHMAN YEAR	FALL	SPRING
Basic Ground School 23	3	
Navigation 24		4
Meteorology 26		3
Flight 35 A-B-C	1-3	
Flight 36 A-B-C		1-3
Psychology 50	2	
United States History 50	3	
Business Mathematics 68		3
Introduction to Business 20		3
American Institutions 50		3
English	3	
Typing 21A	3	
Health Education 1	2	
Guidance 50	½	
Physical Education	½	½
	18	17½

SOPHOMORE YEAR	FALL	SPRING
Advanced Ground School 25	3	
Flight 37 A-B-C	1-3	
Aircraft & Engines 28	3	
Instrument Ground School 30		3
Federal Air Regulations 29	1	
Flight 38 A-B-C		1-3
Climatology 27	3	
Air Law & Regulation 19		2
Air Transportation 17	3	
Airline Operations 15		2
Aero Space Education 20		3
Speech		3
Electives	2	
Physical Education	½	½
	16½	14½

OPTION

Aeronautics 44, 45, & 46

MT. SAN ANTONIO COLLEGE

AERONAUTICS DEPARTMENT

AIR TRANSPORTATION

An Associate in Arts Degree

This curriculum prepares a student for entry level jobs with airline organizations. Jobs such as ticket sales agent, reservations clerk, cargo representative, passenger agent, ramp agent, and other non-technical and non-pilot categories are available to the student upon graduation. The program has been worked out with the cooperation of the Federal Aviation Agency, the State of California Department of Education and representatives from major airlines.

An option is provided for those students who desire to enhance their employment opportunities by taking specific courses in Air Traffic Management in lieu of Foreign Trade 35 and electives. The many entry level jobs in the F. A. A., other than the specific air traffic manager or controller, makes this major attractive to students who wish to broaden the avenues of job opportunities in air transportation and allied fields.

FRESHMAN YEAR	FALL	SPRING
Introduction to Transportation 40	3	
Aero-Space Education 20		3
Regional Geography of North America 36	3	
Regional Geography of South America 37		3
Business Mathematics 11		3
Business English 5		3
Introduction to the American Economy 39	3	
Psychology 50	2	
American Institutfons 50	3	
Health Education 1	2	
Electives		3
Guidance 50	½	
Physical Education	½	½
	17	15½

SOPHOMORE YEAR	FALL	SPRING
Air Law & Regulation 19		2
Air Transportation 17	3	
Airline Operations 15		2
Foreign Trade 35		3
Speech 1A - 1B	3	3
Typing 21A- 21B	3	3
Elements of Accounting 70	3	
Survey of Data Processing 50		3
United States History 50	3	
Electives	2	
Physical Education	½	½
	17½	16½

OPTION

Aeronautics 44, 45, & 46

DESCRIPTION OF COURSES

AERONAUTICS

15 Airline Operations (2)

This course is specifically designed to acquaint the student with the practical application of theory. Field laboratory trips to various airline organizations covering every phase of airline operation, control tower operation, airport lighting, radio and meteorological service, reservations and ticketing, fire and crash protection, and air route traffic control center.

16 Air Freight Transportation (3)

Organization of air freight carriers; analysis of all documentary forms used; materials handling equipment, terminal operation, air cargo tariffs and service; packaging requirements, weight and balance, sales promotion and job specifications.

17 Air Transportation (3)

The survey study of airplanes and air transportation from the advent of the industr as a business to the present, with stress on the development

of the airline system. The course includes the early mail, the first mail carriers, the formation and consolidation of the aircraft industries, emergence of the passenger trade, government subsidy, regulation, airline route development, reservations and ticketing, and the present day airline organization.

19 Air Law and Regulation (2)

Regulations and liabilities of public and private air carriers. Domestic and foreign air law. Today's law and future possible changes.

20 Aero-Space Education (3)

Introductory review of the National Aeronautics and Space Act of the United States. An analysis of international space development, space exploration, current space projects and space environment. A review of values received from our space program and related effects in education, medicine, and air transportation. An evaluation of present jet operations, proposed supersonic transports, new aircraft control systems, and safety of flight.

22 Introduction to Aviation (3)

This basic introductory course in fundamentals of aviation is designed primarily for airline stewardesses. Study of theory of flight, navigation, meteorology, general service of aircraft, and Federal Air Regulations.

23 Basic Ground School (3)

Basic study of Federal Aviation Regulations, meteorology, navigation, theory of flight, use of radio and general service of aircraft. This course is designed to meet the ground school requirements of the F.A.A. Private Pilot Certificate.

24 Navigation (4)

A review is conducted of the basic dead reckoning navigation procedures, study of the special dead reckoning problems, aeronautical computer and their application in cross-country flying. Emphasis is placed on use of radio and electronic navigation aids and flight planning, introduction to cruise control, pressure pattern, and celestial navigation. Also studied are use of radar, loran and terminal procedures. This course meets partial fulfillment of the F.A.A. requirements for an approved Advanced Ground School Certificate.

AERONAUTICS (Continued)

25 Advanced Ground School (3)

A study of the general areas of aeronautics necessary for commercial pilot's certification. Emphasis is placed on flight planning, enroute and terminal procedures. Radio navigation aids, computers, and attitude instrument flight conditions are taught. Stress is placed on safe operating procedures. Federal Air Regulations are reviewed constantly along with flight safety requirements.

26 Meteorology (3)

A study of cloud formations, pressure areas, air masses, winds, fronts temperature, dew point, humidity, precipitation, weather maps, etc. Meets requirements of F.A.A. approved advanced ground school curriculum.

27 Climatology (3)

A study of the physical elements of the fundamental atmosphere processe such as, isolation, temperature, pressure, winds, and general circulation. A study of world climatic changes, climates, and the climatic elements affecting everyday living.

28 Aircraft and Engines (3)

Aerodynamics and theory of flight, aircraft design, construction and rigging, aircraft operation limitations, aircraft repair and maintenance, logbooks and records, aircraft accessories. Engine study includes principles of internal combustion engines, fuel, engine construction and design, lubrication and cooling methods, propellers, repair and maintenance, trouble shooting. Meets Aircraft and Engine requirements of F.A.A. approved advance ground school curriculum.

29 Federal Air Regulations (1)

Certification, identification and marking on aircraft; pilot certificates; general operation rules; air traffic rules including air traffic control practices and procedures; notice and reports of aircraft accidents and missing aircraft. Meets the F.A.R. requirements of F.A.A. approved advanced ground school curriculum.

30 Instrument Ground School (3)

A study of air traffic and communication procedures, operating principles of air navigation radio aids and instrument flight techniques. A study of instrument landing systems, aeronautical publications, and instrument weather.

AERONAUTICS (Continued)

35 Flight A-B-C (1-3) (1 unit per 15 hours of flight)

Basic maneuvers including ground procedures, straight and level flight, turns, climbs, glides, take-offs and landings, slow flights, stalls, ground patterns, slips, emergency landings, cross country planning and flying. Student qualified for private license after a MINIMUM of 35 hours. Students scheduled individually at approved flight schools in the district.

36 Flight A-B-C (1-3) (1 unit per 15 hours of flight)

In addition to proficiency improvement, student learns precision landings. 720 degree power turns, spirals, chandelles, lazy eights. Course partially qualifies student for F.A.A. Commercial Pilot Flight Examination. Students scheduled individually at approved flight schools in the district.

37 Flight A-B-C (1-3) (1 unit per 15 hours of flight)

Radio voice procedure, use of radio facilities, cross country flying, increased horsepower flying, night flying, improvement in proficiency of night maneuvers previously learned. Course partially qualifies student for F.A.A. Commercial Flight Examination. Students scheduled individually at approved flight schools in the district.

38 Flight A-B-C (1-3) (1 unit per 15 hours of flight)

Additional dual and solo flight time to increase proficiency in maneuvers and any additional work necessary to prepare student for F.A.A. Commercial Pilot Examination. Students scheduled individually at approved flight schools in the district.

TRANSPORTATION

35 Principles of Foreign Trade (3)

Fundamentals of foreign exchange, studies in organization of international trade, foreign trade departments, methods of import-export selling, foreign markets, documentation, customs, and import-export procedures.

36 Regional Geography of North America (3)

A one-semester course for Business and Transportation Majors. Major regions of production and consumption. Topography, climate, raw

materials, industries, trade and transportation of the United States and Canada.

37 Regional Geography of South America (3)

The study of topography and climate: agriculture and animal industries; forest and minerals; industries and principal products, transportation; foreign trade and exchange, and principal cities.

40 Introduction to Transportation (3)

The history and development of all forms of transportation and their relationship to each other. The role of transportation plays in the economy of the nation, the livelihood of its citizens and the American way of life. Recommended for students majoring in business, advertising, merchandising, or any student for elective credit.

44 Aeronautics (Air Traffic Control) (3)

Regulations and procedures which govern enroute air traffic operating under instrument flight rules.

45 Aeronautics (Air Traffic Control) (3)

Regulations and procedures which govern arriving and departing traffic from an airport terminal area.

46 Aeronautics (Air Traffic Control) (3)

This course is designed to cover all the functions common to a flight service station. Areas such as, weather broadcasting, weather observation, weather briefings, and air to ground communications are covered thoroughly. Lost and overdue aircraft procedures are also covered.

47 Aeronautics (Traffic Control Internship)

Students enrolled in the air traffic management major will be offered an opportunity for summer employment and indoctrination at air traffic facilities. Selection will be based upon academic proficiency and the successful completion of Civil Service and Federal Aviation Agency examinations.

50 Survey of Data Processing (3)

This course is intended as a general information course. It provides some historical background of data processing and discussion of unit record equipment and computers. Topics discussed include, programming, machine organization, number systems, flowcharting, data processing procedures and applications, and data processing management.

OHLONE JUNIOR COLLEGE
Freemont, California 94537

AIR TRAFFIC CONTROL CURRICULUM CHOICES

AVIATION 1 - INTRODUCATION TO AIR TRANSPORTATION

A general introduction to the airplane and its flight capabilities.

AVIATION 2 - AVIATION FACILITIES AND OPERATIONS

Airport operations and management.

AVIATION 3 - AIRPORT SERVICES AND OPERATIONS III

The physical airport and the flow of aircraft on its surface and surrounding airspace.

AVIATION 5 - PRIVATE PILOT GROUND SCHOOL

* A general introduction to aircraft flight and basic procedures..

AVIATION 7 - COMMERCIAL PILOT GROUND SCHOOL

An overview of advanced aircraft flight and complex procedures.

AVIATION 8 - AVIATION NAVIGATION

In-depth study of procedures, Federal regulations, and air traffic control.

AVIATION 9 - AVIATION METEOROLOGY

In-depth study of weather conditions important to airmen, and knowledge about ground-based weather services.

**

BUSINESS 10 - ELEMENTARY TYPEWRITING

Clarity of written data.

BUSINESS 33 - BUSINESS COMMUNICATIONS

Communication of data.

BUSINESS 39 - HUMAN RELATIONS IN BUSINESS

Success in working with others.

*AVIATION 6 - AIR TRAFFIC CONTROL

Specifics of Center, tower operations

**AVIATION 16 - INSTRUMENT FLIGHT

Professional and operational knowledge about IFR Fllights

DATA PROCESSING 1 - INTRODUCTION TO DATA PROCESSING

Understanding the recent air traffic computer control systems being installed in control facilities.

ELECTRONICS 1 - FUNDAMENTALS OF ELECTRONICS

Understanding basic electrical principles.

ELECTRONICS 2 - FUNDAMENTALS OF ELECTRONICS

Understanding basic electronic principles.

ENGLISH 1, 2, 21, 22 - ENGLISH

Ensure clear communication.

INDUSTRIAL SUPERVISION 1 - ELEMENTS OF SUPERVISION

To understand the crew concept used on-the-job.

INDUSTRIAL SUPERVISION 5 - SUPERVISOR'S RESPONSIBILITY FOR MANAGEMENT PERSONNEL

To prepare for upgrading within the Federal Aviation Administration.

MATHEMATICS 11, 12, 13, 14, 21, 22, 25 - MATHEMATICS

To assure computational abilities in flight problems.

SPEECH 1, 2 - FUNDAMENTALS OF SPEECH

To assure voice clarity and meaning.

GREEN RIVER COMMUNITY COLLEGE
AUBURN, WASHINGTON 98002

AVIATION CURRICULA

Aviation

111 Basic Ground School (3) Flight theory, principals of flight, meteorology, basic navigation, chart reading, use of flight computer and plotter, radio aids to navigation, federal air regulations. Designed for private pilot applicants.

112 Advanced Ground School (3) Advanced meteorology, cross country navigation, advanced use of the computer, advanced federal air regulations. Designed for commercial license applicants. PREREQUISITE: 111.

122 Aviation Fundamentals (5) Aviation industry orientation, pre-flight facts, meteorology, flight computer, Federal Aviation Administration facilities and procedures.

123 Aviation Fundamentals (5) Air navigation, navigation aids, flight planning, radio communications procedures and regulations. PREREQUISITE: 122.

124 Aviation Fundamentals (5) Instruments and Systems, weight and balance, flight regulations, air traffic control definitions, introduction to air traffic control procedures. PREREQUISITE: 123.

125 Traffic Control Internship (3) Students enrolled in the air traffic control program will be offered an opportunity for summer employment and indoctrination at air traffic control facilities. Students allowed to enter this program will be selected based on scholastic record. PREREQUISITE: 122, 123, &124 or 217.

201 Air Traffic Control (3) Covers regulations and procedures governing enroute air traffic operating under instrument flight rules.

202 Air Traffic Control (3) Covers regulations and procedures governing arriving and departing traffic from a terminal area (airport).

203 Air Traffic Control (3) Covers weather broadcasting, weather observation, weather briefings, air to ground communications, lost or overdue aircraft procedures. All functions of the flight service station.

216 Instrument Ground School (4) Theory of instrument flight, advanced aviation meteorology, dead reckoning and radio navigation airborne direction finding equipment, morse code, radar, clearance copying and federal air regulations pertaining to instrument flight. PREREQUISITE: 112 or a commercial pilot license.

217 Air Traffic Control Supplemental (3) Covers additional information necessary for students who have a private pilot (or higher) rating or who have completed AV 111, 112, or 216. This supplemental data will augment this background with the additional information contained in AV 122, 123, and 124, and will qualify them for enrollment in the Traffic Control Internship program, AV 125.

AVIATION (continued)

230 Basic Flight (5) This course is designed to qualify the student for the Federal Aviation Administration Private Pilot certificate. A total of 40 hours instruction is provided, which includes 20 hours of dual flight and 20 hours of solo flight. PREREQUISITE: 111.

The following air traffic curriculum is designed primarily for the student who is interested in becoming an air traffic controller or seek employment in related fields such as airline dispatcher, airport management, professional pilot, airline operations, military flight operations, etc. Successful students will graduate with an Associate Degree in Aviation and a private pilot license if desired. Though desirable, the pilot license is not required for this degree.

FRESHMAN YEAR	Credits	SOPHOMORE YEAR	Credits
Engl 81,82 or 101,102	10	Psychology 201	5
Transportation 101, 110	8	Geography 200	5
Sociology 110	5	Aviation 201, 202, 203	9
Political Science 100	3	Political Science 201	5
Business Adm 101	5	Economics 200	5
Physical Ed (Act.)	3	Philosophy 120	5
Psychology 100	5	Speech 90 or 220	5
Aviation 122, 123, 124	15	Transportation 115	3
Summer school only:			42
Aviation 125	3		
	57		

TRANSPORTATION CURRICULUM - See catalog

M T. H O O D C O M M U N I T Y C O L L E G E
Gresham, Oregon

AIR TRAFFIC CONTROLLER

The Air Traffic Controller program is a two-year Associate Degree program designed to meet the needs of persons whose immediate interest is to prepare to meet qualifications for an FAA Air Traffic Controller position.

GENERAL EDUCATION REQUIREMENTS:

Communication Skills	6 credit hours
Technical Report Writing	3 credit hours
Mathematics	6 credit hours
Sociology	3 credit hours
Geography	3 credit hours
Psychology	6 credit hours
Physical Education & Health	7 credit hours
Speech	3 credit hours
Economics	3 credit hours

MAJOR CURRICULUM REQUIREMENTS:

Minimum 30 term-hours in Aviation-Transportation Technology courses (see following curriculum outlines for specific courses and credit requirements).

MINOR CURRICULUM REQUIREMENTS:

Minimum 24 credit hours in Aviation, Business, Liberal Arts.

GENERAL REQUIREMENTS:

Total credit: 97 credit hours. (See following curriculum outlines for specific requirements.)

Work in residence: Minimum, 30 credit hours; the last 15 hours on campus.

Grade point average: Minimum, 2.00

M T. H O O D C O M M U N I T Y C O L L E G E
Gresham, Oregon

AIR TRANSPORTATION TECHNOLOGY

The Air Transportation Program is a two-year Associate Degree Program to meet the needs of persons whose immediate interest is to prepare to meet qualifications for an FAA Air Traffic Controller position. Applicants for positions as Air Traffic Controller must be at least 21 years of age, able to pass a Personality Factor Test, and a Class II examination.

FIRST QUARTER		CR
MTH 20	Math I	3
AT 10	Transportation I	3
AV 10	Aviation I	4
ENG 10	Communication Skills	3
PSY 10	Psychology	3
PE190	Physical Education	1
		17

SECOND QUARTER		
MTH 21	Math II	2
ENG 11	Communication Skills II	3
AT 11	Transportation II	3
AV 11	Aviation II	3
SOC 20	Industrial Sociology	3
PE 190	Physical Education	1
		16

THIRD QUARTER		
ENG 20	Public Speaking	3
AT 12	Transportation III	3
AV 12	Aviation III	3
PSY 20	Psychology	3
ENG 30	Technical Report Writing	3
PE 190	Physical Education	1
		16

FOURTH QUARTER		CR
AV 13	Aviation IV	3
AT 20	Transportation IV	3
EC 20	Business Economics	3
PE 190	Physical Education	1
	*Electives	6
		16

FIFTH QUARTER		
AT 21	Transportation V	3
GEOG 10	Geography	3
PS 10	American Institutions	3
PE 190	Physical Education	1
	*Electives	6
		16

SIXTH QUARTER		
AT 22	Transportation VI	3
BUS 28	Basic Computer Concepts	3
HE250	Health Education	3
	*Electives	9
		18

1969-70 College Year

AT 10 Transportation I — Term Units 3

Introduction to Transportation; Transportation in our economy, the transportation system and airline development, development and regulation of transportation, theory of rate-making and government controls, selected carrier problems and transportation policies.

AT 11 Transportation II — Term Units 3

History of Air Transportation; the development of aviation and transportation by air from 1800 to the present time. Study of equipment, techniques, regulations, and laws developed by and for the many carriers in business today.

AT 12 Transportation III — Term Units 3

(History of the FAA from 1926-1963, an FAA publication in chronological order prepared by the Office of Management Services, FAA. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402; Price $1.)

AT 20 Transportation IV, V, VI — Term Units 3
21
22 The seven basic subjects for an AOS Certificate to be taught under this heading.

AV 10 Aviation I (4 Class Hrs/Wk) — Term Units 4

A study of the fundamentals of flight theory, flight instruments, Federal Air Regulations, navigation, radio, weather, and aeronautical information publications. Upon successful completion of this course, the student has sufficient knowledge to pass the Federal Aviation Agency written examination for the Private Pilot Certificate, which constitutes the final examination. Prerequisite: None.

AV 11 Aviation II (3 Class Hrs/Wk) — Term Units 3

Covers in depth the areas of aerodynamics and principles of flight, flight instruments, aircraft job performance Federal Air Regulations, aeronautical information publications, navigation, weather and radiio. Prerequisite: Aviation I or instructor's permission.

AV 12 Aviation III (3 Class Hrs/Wk) — Term Units 3

A continuation of Aviation II. Prerequisite: Successful completion of Aviation II.

AV 13 Aviation IV (3 Class Hrs/Wk) — Term Units 3

A continuation of Aviation III. Prerequisite: Successful completion of Aviation III.

BUS 35 Basic Computer Concepts (3 Class Hrs/Wk Term Units 3

A basic orientation to the field of electronic data processing. An introduction to unit record principles and managerial use of computers. Prerequisite: General Accounting III or consent of instructor.

EC 20 Business Economics (3 Class Hrs/Wk) Term Units 3

Business Economics deals with the underlying principles by which business is influenced. Production, income, management, prices, values, markets, money wastes, interest and profits are examples of subjects studied with illustrations of how they effect current business situations. The course is designed to help the student understand the problems and thus have a deeper insight unto his personal responsibilites to his firm.

ENG 10 Communication Skills (3 Class Hrs/Wk) Term Units 3
11

Designed to improve the student's ability to employ effectively and with increasing self-confidence the four basic communication skills: reading, speaking, listening and writing. Emphasis is placed on vocabulary building, correct habits of observation and forceful oral and written expression, upon reading analyzing and discussing general and technical periodicals, and upon mastering representative forms of business and technical communication. Prerequisite: Passing scores in the English section of the placement test or successful completion of English Fundamentals. Must be taken in sequence.

ENG 20 Public Speaking (3 Class Hrs/ Wk) Term Units 3

This course is intended to develop skills with emphasis on the dual role of speech as both a speaking and listening skill, and on adjusting the approach to the specific audience. Practice is provided through individual speeches and group discussions with careful attention being given to effective organization and delivery. In addition to the general principles of speech, stress is placed on poise and confidence and on understanding their psychological basis.

ENG 30 Technical Report Writing (3 Class Hrs/Wk) Term Units 3

A study of the principles of composition as they apply to the writing of reports required in the technical and business professions. Procedures of fact gathering, organization techniques and methods of compiling data are studied through the actual writing of reports. Prerequisites: Communication Skills I and II or English Composition WR 111, 112, 113.

Geog 10 Geography (3 Class Hrs/Wk) Term Units 3

World Regional Geography: A study of the World's regional structure: analysis and interpretation of the world's cultural, economic, and resource patterns.

MATH 20 Technical Math I (3 Class Hrs./Wk) Term Units 3

This is an applied course in mathematics on the technical level, covering the slide rule, tables and interpolation, additional applications in exponents and radicals, quadratic equation in one unknown and introductory trigonometry.

MATH 21 Technical Math II (3 Class Hrs/Wk) Term Units 3

This is an applied course in mathematics on the technician level including logarithms, right and oblique problem solving, Trigonometric applications, and graphs of trigonometric functions.

PS 10 American Institutions (3 Class Hrs/Wk) Term Units 3

A study of the effect of American social, economic and political institutions upon the individual as a citizen and as a worker in business and industry. The inter-relationship of freedom and control is utilized as a common denominator in considering the fundamental principles and processes involved in the development of the basic institutions of our society. Topics considered are: culture, its functions and changes; social groups in relation to problems of urban living, personality formation, the family, and social classes; the American economic system, its concepts and organizations; public opinion, the American political system, its constitutions foundations, judicial, executive, and legislative divisions; and international relations.

PSY 20 Psychology of Human Relations (3 Class Hrs/Wk) Term Units 3

A study of principles of psychology that will be of assistance in the understanding of inter-personal relations on the job. Motivation, feelings and emotions, and learning are considered with particular reference to their application to on-the-job problems. Other topics investigated are: intelligence and aptitude tests, employee selection, supervision, job satisfaction, and industrial conflict as they relate to the employee and his work situation. Attention is also given to personal and group dynamics so that the student may learn to apply the principles of mental hygiene to his adjustment problems as a worker and a member of the general community.

SOC 20 Industrial Sociology

This course is designed for the student who desires an introductory course in work and society. It explains the development of the industrial society and modern bureaucracy. Emphasis is placed on the roles of the worker within this modern social structure. The nature and goals of both industrial and work organizations are examined, and special attention is focused on the problems relating to these areas in contemporary society.

BLUE MOUNTAIN COMMUNITY COLLEGE
2410 N.W. Carden Avenue
Pendleton, Oregon 97801

AIR TRAFFIC CONTROLLER
COMMERCIAL PILOT TRAINING:

FRESHMAN YEAR

	F	W	S
Mathematics (6.100, 6.101, or 4.200, 4.202)	3	3	
Transportation (6.420, 6.422, 6.424)	3	3	3
Aviation Ground School (6.402, 6.404)	5		5
Communication Skills (1.100, 1.102)	3	3	
Basic Flight Laboratory (6.401, 6.403)	2	2	
Industrial Sociology (1.612)		3	
Introduction to Data Processing (2.702)			3
Industrial Psychology (1.608)			3
Intermediate Flight Laboratory (6.405)			2

SOPHOMORE YEAR

Transportation (6.426, 6.428, 6.430)	3	3	3
Industrial Economics (1.506)	3		
Intermediate Flight Laboratory (6.407, 6.409)	2	2	
Report Writing (1.194)		3	
Aviation Ground School (6.406)		5	
American Institutions (1.600)			3
Advanced Flight Laboratory (6.411)			2
Fundamentals of Speech (Sp 111)			3
Geography (Geog 105 or 106)		3	
Electives *	9		6

APPROVED ELECTIVES

Physical Education (PE 190)
Health (HE 252)
Computer Programming (2.704, 2.706)
Practical Physics (4.300, 4.302, 4.304)

Students who complete Air Traffic Controller or Air Traffic Controller –Commercial Pilot Training will receive an Associate of Science Degree in Air Transportation Technology.

BLUE MOUNTAIN COMMUNITY COLLEGE
2410 N.W. Carden Avenue
Pendleton, Oregon 97801

AIR TRANSPORTATION TECHNOLOGY

COMMERCIAL PILOT TRAINING:

FRESHMAN YEAR

	F	W	S
Major field of study to be selected from	9	15	9
Liberal Arts or Applied Science curriculums			
Aviation Ground School (6.402, 6.404)	5		5
Basic Flight Laboratory (6.401, 6.403)	2	2	
Intermediate Flight Laboratory (6.405)			2

SOPHOMORE YEAR

Major field of study	15	10	12
Aviation Ground School (6.406)			5
Intermediate Flight Laboratory (6.407, 6.409)	2	2	
Advanced Flight Laboratory (6.411)			2

Students who complete the Commercial Pilot Training program will receive an Associate of Arts or an Associate of Science Degree in their selected major field of study.

AIR TRAFFIC CONTROLLER:

FRESHMAN YEAR

	F	W	S
Mathematics (6.100, 6.101 or 4.200, 4.202)	3	3	
Transportation (6.420, 6.422, 6.424)	3	3	3
Aviation Ground School (6.402, 6.404)	5		5
Communication Skills (1.100, 1.102)	3	3	
Industrial Sociology (1.612)		3	
Introduction to Data Processing (2.702)			3
Industrial Psychology (1.608)			3
Business English (2.204)			3
Introduction to Business (BA 101)		4	

SOPHOMORE YEAR

Transportation (6.426, 6.128, 6.430)	3	3	3
Aviation Ground School (6.406)		5	
Industrial Economics (1.506)	3		
Report Writing (1.194)		3	
Geography (Geog 105, or 106)		3	
Fundamentals of Speech (Sp 111)			3
Electives	9	3	9

APPROVED ELECTIVES

Office Management:
Personnel (2.309)
Office Procedures (2.650)
Business Law (2.400, 20402, 2.404)
Data Processing–Accounting
Computer Programming (2.704, 2.706)
Principles of Finance (2.380)
Accounting (2.450, 2.452, 2.454)

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BLUE MOUNTAIN COMMUNITY COLLEGE
AIR TRAFFIC CONTROLLER
BUSINESS OPTION
COURSE DESCRIPTIONS

Accounting - 2.450

An introduction to accounting and the fundamental principles of accounting as applied to a sole proprietorship; the meaning and purpose of accounting; accounting statement; balance sheet and profit and loss statement; the theory of debts and credits; accounts and the trial balance; journals, ledgers, payroll; the complete accounting cycle.

Accounting - 2.452

Partnerships, cash control, negotiable instruments, asset valuation, sales, taxes, adjusting and closing, use of worksheets.

Accounting - 2.454

Corporation formation, equity accounting, bonds and investments, manufacturing, product cost, analysis of financial statements, budgeting and special sales situations.

Aviation Ground School - 6.402

A study of the principles of flight, meteorology, navigation, aircraft and engine operation, flight instruments, aircraft performance, flight information publications, the flight computer, radio communications, and composite flight problems which upon completion will provide the student sufficient knowledge to pass the Federal Aviation Administration written examination for the Private Pilot Certificate.

Aviation Ground School - 6.404

An in depth study of meteorology, radio navigation, instruments, Federal Aviation Regulations, Flight Information Publications Charts, aircraft weight and balance, aircraft performance characteristics, airplane and engine operation and flight planning to prepare the student to take the Federal Aviation Administration Commercial Pilot written examination.

Aviation Ground School - 6.406

A description and study of the various gyroscopic instruments, their functions, limitations and characteristic errors. Radio aids used under Instrument Flight conditions including Very High Frequency Omni Directional Range (VOR), Instrument Landing System (ILS), Automatic Direction Finding (ADF), and Direction Finding (DF), equipment. Charts and approach plates as adapted to radio navigation and the application of the Airman's Information Manual appropriate to instrument flight planning.

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Business English - 2.204

Business English concerns itself with effective communication, particularly related to business. Mechanics of vocabulary building; grammar, punctuation are given attention. Emphasis is on proper letter writing in areas of inquiry, sales and adjustment and other miscellaneous types. Course also includes study of oral skills required in the business world.

Business Statistics - 2.275

Statistical analysis of business and economic data used in controlling and in making business decisions.

Communication Skills - 1.100

This course is designed to improve the student's reading, listening, and writing skills to that he can communicate more effectively with others.

Communication Skills - 1.102

This course is a continuation of Communication Skills - 1.100 and is designed to develop further the student's skills in reading, writing, listening, and speaking. Emphasis is placed on effective oral communication.

Computer Programming - 2.704

The student will study the functions and capabilities of electronic computers and the basic programming fundamentals such as the structure of the basic programming languages and techniques.

Computer Programming - 2.706

This course will cover the functions and capabilities of the IBM 1130 computer utilizing Fortran IV. The student will write programs and run them on the 1130.

Credit Procedures - 2.350

Principles of credit, administration including sources of information, policy, control, legal remedies and collection.

Fundamentals of Insurance - 2.370

Personal and business forms of insurance including life, automobile, health and accident, fire, and workmen's compensation insurance.

Fundamentals of Speech - Sp 111

Basic fundamentals of preparation, composition and organization. Fundamentals of delivery, including poise, voice, articulation, use of notes, and audience relationships.

Industrial Economics - 1.506

Industrial Economics deals with the principles involved in the operation of the American economic system. The role of business and industry in the total economy is studied. Basic economic principles are applied to the relationship of employer and employee. Topics considered include, historic trends, business organizations, prices and competition, imperfect competition and monopoly, price levels, business cycles, taxation, labor management relations, labor legislation, and social and private security.

Industrial Psychology - 1.608

A study of inter-personal relations on the job. Emphasis is given to the area of psychology called Human Relations. Some of the subjects covered are causes of behivior, attitudes, frustration, morale, leadership, and motivation.

Industrial Sociology - 1.612

This course is designed for the student who desires an introductory course in work and society. It explains the development of the industrial society and modern bureaucracy. Emphasis is placed on the roles of the worker within this modern social structure. The nature and goals of both industrial and work organizations are examined, and special attention is focused on the problems relating to these areas in contemporary society.

Introduction to Business - BA 101

Business organization, operation, and management intended to orient the student in the field of business and to aid him in determining a major field.

Introduction to Data Processing - 2.702

This course illustrates the development of mechanized data processing systems from manual methods, and is designed to provide a foundation for detailed study of specific systems. Emphasis is placed on "unit record" data processing concepts.

Introductory Geography - Geog 105, 106

A general introduction to the field of geography: 105, physical geography; 106, cultural geography.

Mathematics - 6.100

This is a course in mathematics for the technician covering the techniques of intermediate algebra and mathematical analysis necessary for the technical theory courses.

Mathematics - 6.101

The second of the mathematics courses for technicians dealing with trigonometric functions and their applications, complex numbers, logarithms, and elementary vector theory.

Mathematics - 4.200

A course in practical mathematics dealing with problems in arithmetic involving whole numbers, fractions, decimals, weights and measures, percentages, and approximate numbers.

Mathematics - 4.202

A course in practical mathematics dealing with applications of arithmetic, algebra, and geometry. Applied algebra and plane and solid geometric figures and their properties are studied.

Office Machines - 2.900

Instruction in the operation of 10-key adding-listing machines and full-key adding-listing machines with the emphasis being placed on 10-key machines. Speed is stressed as well as accuracy.

Office Machines - 2.902

Instruction in the operation of printing calculators. Accuracy and speed in solving typical business transactions are stressed as well as the mechanics of the machine.

Payroll Accounting - 2.456

Federal and State old age, unemployment, and disability insurance laws; state and local income taxes. Keeping accounting records in compliance with the numerous regulations of government bodies.

Personnel - 2.309

Techniques and methods used to achieve utilization of manpower in business through proper selection, placement, training, job evaluation, wage setting, and employee relations.

Principles of Advertising - 2.307

Course is designed to give an understanding of the general field of advertising. Emphasis on content, layout, and sales promotion.

BLUE MOUNTAIN COMMUNITY COLLEGE

AIR TRAFFIC CONTROLLER - COMMERCIAL PILOT

COURSE DESCRIPTIONS

American Institutions:

A study of the effect of American social, economic, and political institutions upon the individual as a citizen and as a worker in business and industry. The inter-relationship of freedom and control is utilized as a common denominator in considering the fundamental principles and processes involved in the development of the basic institutions of our society. Topics considered are: culture, its functions and changes; social groups in relation to problems of urban living, personality formation, the family, and social classes; the American economic system, its concepts and organization; public opinion, the American political system, its constitutional foundations, judicial, executive, and legislative divisions; and international relations.

Aviation I

Basic Ground School I; Flight Theory; principles of flight, meteorology, basic navigation (reading of aeronautical charts, use of plotter), radio aids to navigation, and civil air regulations.

Aviation II

Basic Ground School II; basic air dynamics for high-speed aircraft, advanced navigation, and meteorology.

Aviation III

Basic Ground School III. Advanced meteorology, cross-country navigation including use of computer, radio aids and communication, FAR.

Aviation IV

Instrument Ground School; theory of instrument flight, advanced aviation meteorology, dead reckoning and radio navigation, automatic directions finding equipment, Morse Code, radar, clearance copying, and FAR pertaining to instrument flight.

Communication Skills:

This course is designed to improve the student's reading, listening, and writing skills so that he can communicate more effectively with others.

Communication Skills:

This course a continuation of Communication Skills, is designed to develop further the student's skills in reading, writing, listening, and speaking. Emphasis is placed on effective oral communication.

Computer Programming:

The student will study the functions and capabilities of electronic computers and the basic programming fundamentals such as the structure of the basic programming languages and techniques.

First Aid

The study of first aid and safety procedures. Meets certification standards of American Red Cross.

Basic Flight Lab I and II

The first half of two phases of flight training. A total of 75 hours of instruction is provided, including 25 hours of dual flight, 30 hours of solo flight and 20 hours of oral instruction and briefing. A class II Federal Aviation Administration Medical Certificate is required.

Intermediate Flight Lab. III, IV, and V

A continuation of Basic I and II. The second half of two phases which includes a total of 135 hours of instruction, including 30 hours of dual flight, 75 hours of solo flight and 30 hours of oral instruction and briefing.

Instrument Flight Advanced VI

The necessary instruction to qualify for the Federal Aviation Administration Instrument Pilot Rating. A total of 30 hours of instruction is provided, including 20 hours of dual flight, and 10 hours of oral instruction and briefing.

Georgraphy

World Regional Geography: A study of the world's regional structure; analysis and interpretation of the world's cultural, economic, and resource patterns.

Health

Study of the personal health problems of men and women with emphasis on implications for family life. Mental health, communicable diseases, degenerative diseases, nutrition.

Industrial Economics

Industrial Economics deals with the principles involved in the operation of the American economic system. The role of business and industry in the total economy is studied, Basic economic principles are applied to the relationship of employer and employee. Topics considered include, historic trends, business organization, prices and competition, imperfect competition and monopoly, price levels, business cycles, taxation, labor management relations, labor legislation, and social and private security.

Industrial Psychology

A study of inter-personal relations on the job. Emphasis is given to the area of psychology called Human Relations. Some of the subjects covered are causes of behavior, attitudes, frustration, morale, leadership, and motivation.

Industrial Sociology:

This course is designed for the student who desires an introductory course in work and society. It explains the development of the industrial society and modern bureaucracy. Emphasis is placed on the roles of the worker within this modern social structure. The nature and goals of both industrial and work organizations are examined, and special attention is focused on the problems relating to these areas in contemporary society.

Introduction to Data Processing

This course illustrates the development of mechanized data processing systems from manual methods, and is designed to provide a foundation for detailed study of specific systems. Emphasis is placed on "unit record" data processing concepts.

Physics

A course in applied physics on the post high school level. Covers mechanics of measurement and mechanics. Laboratory time is provied for demonstrations and experiments to clarify principles and procedures covered in class.

Physics

A course in applied physics at the post high school level. The course covers heat, wave motion, sound, and light. Laboratory time is provided for demonstrations and experiments to clarify principles and procedures.

Physical Education

Physical activities taught for acquisition of skill and for adaption in social life of the student.

Public Speaking

Basic fundamentals of preparation, composition and organization. Fundamentals of delivery, including pose, voice, articulation, use of notes, and audience relationships. Emphasis on demonstrative and informative speeches.

Technical Mathematics:

This is a course in mathematics for the technician covering the techniques of intermediate and mathematical analysis necessary for the technical theory courses.

Technical Mathematics:

The second of the mathematics courses for technicians dealing with trigonometric functions and their applications, complex numbers, logarithms, and elementary vector theory.

Technical Report Writing

A course in the coordinated treatment of technical data in written reports.

Transportation I

Introduction to Transportation; transportation in our economy, the transportation system and airline development, development and regulation of transportation, theory of rate-making and government controls, selected carrier problems and transportation policies.

Transportation II

History of Air Transportation; the development of aviation and transportation by air from 1800 to the present time. Study of equipment, techniques, regulations, and laws developed by and for the many carriers in business today.

Transportation III

(History of the FAA from 1926 - 1963, an FAA publication in chronological order prepared by the Office of Management Services, FAA. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. - 20402; $1).

Transportation IV, V, and VI

The seven basic subjects for an AOS Certificate to be taught under this heading.